

Discussion on the Construction of Mechanisms for the Medical Waste in China

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Abstract: China has large population, with the development of social and economic, the number of medical waste is growing rapidly. The medical waste is highly infectious and hazardous, that requires us to pay more attention to its proper treatment. China's legal mechanism for medical waste started late, the existing main laws and regulations is "Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste" and "Regulations on the Administration of Medical Wastes". These have made some achievements in the management of medical waste in China and brought the medical waste industry into the track of legal management. But we have to admit that environmental pollution, social security and other problems caused by medical waste occur frequently, and the treatment of medical waste is particularly important. In order to effectively promote the improvement of this problem, in line with the requirements of the 19th National Congress of the CPC on ecological protection, it is necessary to start from the construction of the legal system, drawing on foreign experience in the legal system of medical waste, combining with the actual situation in China, establishing an effective legal system, so as to achieve effective prevent environmental pollution and promote the sustainable development of society.

Keywords: Medical waste; Pollution prevention and control; Legal mechanism; Recycle

1 Background

With the increase in people's demand for medical technology and the substantial growth of the number of medical waste, the types and components of medical waste are becoming complex, and the social and environmental problems caused by medical waste are becoming increasingly prominent. If medical waste cannot be properly disposed of, it will inevitably bring negative effects on people's life and social development. In November 2020, an infected person with COVID-19 was found in Taiping Village, Chengdu. After investigation, the patient had been infected with the virus due to garbage collected from the quarantine area.

2 Definition and classification of medical waste

2.1 Definition of medical waste

The Regulations on the Administration of Medical Wastes(2003) issued in China formally put forward the definition of medical waste: it refers to the direct or indirect infectious, toxic, and other hazardous wastes produced by medical institutions in the course of medical treatment, prevention, health care, and other related activities. As medical waste is hazardous waste, the Solid Waste Law(1996) did not specifically regulate the management of medical waste. Until the outbreak of COVID-19 in 2020, people began to pay attention to the treatment of medical waste. In the Solid waste Law(2020 version), article 90 requires medical waste to be managed according to the Directory of National Hazardous Waste(Version 2003). At the same time, all local governments are required to strengthen the centralized disposal of medical waste and carry out the classified collection.

2.2 Classification of medical waste

The classification of medical waste by the World Health Organization (WHO) provides the world with guidance and helps countries to formulate the classification standards suitable for managing their medical waste according to the actual situation at home. The Directory of National Hazardous Waste(Version 2021) issued by the Ministry of Ecology and Environment and other five departments stipulates that

"medical waste classification shall be carried out by the Catalogue of Medical Waste Classification". China's medical waste is divided into five categories: infectious waste, injurious waste, pathological waste, pharmaceutical waste, and chemical waste. Generally speaking, China's medical waste management schemes are designed based on the above classification methods, but the method is theoretical, not suitable for a specific practice, and is usually used in scientific research.

2.3 Characteristics of medical waste

First, medical waste is hazardous. The first category on the list of Directory of National Hazardous Waste (Version 2021) is medical waste, which may contain a large number of pathogens, toxic chemicals, and microorganisms. Some medical wastes also contain harmful and radioactive substances, which pose a great threat to public health. Improper disposal will bring heavy losses to the whole society.

Second, medical waste is difficult to degrade. The difficulty of medical waste degradation includes two aspects: the first is that the composition of medical waste is complex, and it is difficult to completely decompose it in a short time through the self-purification of the natural environment. The second one refers to the medical waste which contained harmful ingredients. If they are discarded in the natural environment, it is not only causes the re-spread of harmful ingredients, and even harms the natural environment, reducing or destroying the self-purification of nature, thus making the development into a vicious cycle. Therefore, the degradation of medical waste needs to take certain technical means to help.

Third, disposal technology of medical waste requires expertise. Due to the large population, China's generation of medical waste is increasing rapidly year by year. Advances in science and technology have increased the variety and complexity of medical waste. Different types of medical waste need different treatment methods to minimize the harm. Incineration of medical waste is effective, but massive incineration is prone to secondary pollution, especially air pollution.

3 Overview of legislation regarding medical waste in China

In 2003, the outbreak of SARS promoted the process of the legal construction of medical waste in China and promulgated the Regulations on the Administration of

Medical Wastes, Measures for Medical Wastes Management of Medical and Health Institutions, and relevant laws and regulations. The State Council on the National Hazardous Waste and Medical Waste Disposal Facilities Construction Planning Approval(2003), the Medical waste management measures for the administrative penalties(2004), the medical waste bags, containers, and warning sign standard(2008), "medical waste incineration environmental health standard(2008), etc., these have made detailed regulations for medical waste management. The Compendium of " the 11th Five-Year Plan for National Economic and Social Development" has added treatment of medical waste to major national projects, which is supported by the national fund. The Environmental Protection Law of the People's Republic of China (hereinafter referred to as the Environmental Protection Law) added medical waste as a kind of pollutant in 2015. The Directory of National Hazardous Waste (Version 2016) introduces the contents of medical waste management in detail. The Solid Waste Law (Version 2020) has added new provisions for medical waste. The report of the 19th National Congress of the CPC calls for strengthening ecological progress, promoting green development, addressing environmental problems, and building a beautiful China, which emphasizes the disposal of medical waste. China's Civil Code, which was promulgated in 2020 and put into effect in 2021, stipulates responsibility for environmental pollution and ecological damage: "where any harm is caused to another person by environmental pollution or ecological damage, the tortfeasor shall assume the tort liability." Therefore, to regulate the medical waste treatment industry in China and reduce the impact of medical waste on the environment, it is necessary to strengthen the legal mechanism construction of medical waste in China.

4 The main problems of China's legal system for medical waste

4.1 Medical waste classification

In the actual medical waste management process, there are many problems of irregular handling, and many medical institutions do not strictly follow the classification in China to differentiate the disposal. For example, some medical institutions directly dispose of disposable medical supplies according to infectious waste, but in fact, most disposable medical supplies can be recycled after harmless treatment. Such arbitrary classification of medical waste, while increasing the amount of infectious waste, is

contrary to the principle of reduction required at the source of control of medical waste, and the generalization of classification standards has brought a certain burden to the disposal industry, which is why medical institutions have not achieved significant results in the case of medical waste classification. There are also other phenomena: although some medical institutions distinguish between medical waste and domestic waste, the actual management still mixes the two kinds of waste; some departments in hospitals occasionally have toilet paper, plastic bottles, and other ordinary domestic waste in the temporary storage of medical waste; the garbage cans in inpatient departments often have used medical swabs, potties, diapers, etc. from patients; gloves, masks and cotton swabs in Infectious waste is mixed with other types of medical waste, such as injurious waste and pharmaceutical waste. This series of irregularities has undoubtedly created more pressure on the disposal of medical waste. The root of this problem is caused by the classification system in China, where the confusing nature of the classification criteria for medical waste reduces the practical work-ability of medical waste, resulting in the phenomenon of not being able to distinguish between types of medical waste and discarding them at will.

4.2 Inadequate supervision and management system

Supervision and management of medical waste is the fundamental guarantee to effectively ensure the concrete implementation of the medical waste management system, which is a systematic supervision procedure involving multiple departments, including the competent department of ecology and environment, the competent department of health administration, as well as medical institutions and disposal centers, which requires not only mutual supervision between departments but also supervision within the department itself. The supervision of multiple departments may enhance the strength of medical waste management, but it may also be due to the intricate relationship between departments, unclear division of responsibilities and ambiguity in the attribution of responsibility, the phenomenon of multiple management or empty-headed management.

4.3 Lack of system for medical waste recycling

The recycling system of medical waste is the main means to realize the resourcefulness of waste, and it is an inevitable choice to realize medical waste management in the era of promoting the concept of green development. Medical waste may cause environmental pollution, but also has the value of recycling, recycling can reduce the amount of medical waste generated and can play a dual benefit of saving resources and protecting the environment. With the increasing amount of medical waste in China, recycling medical waste is a stable, long-term development with value for investment. If there is no targeted legal construction to avoid the chaos of the market due to economic interests, both the development of the industry and environmental protection is harmful rather than beneficial.

5 Suggestions for improving the legal system of medical waste

5.1 Refine the medical waste

Classification of medical waste is the basis for the successful management of medical waste, the subsequent treatment of medical waste is all based on the classification system, and therefore requires the classification of ways to strengthen the operability, not too general or too fine, too general classification is likely to lead to classification link is not standardized, and too fine classification will lead to complex classification steps, classification efficiency is low, which is not conducive to improving economic efficiency. In China's "medical waste classification catalog" medical waste is divided into five categories, the provisions are not detailed enough, resulting in the classification of medical waste in the actual operation of the obstacle, not to promote the purpose of medical waste classification, and disposal. Therefore, further refinement of medical waste classification is the only choice to improve the problem of medical waste classification in China.

The classification system of medical waste should also take into account how to guide the public to improve their ability to effectively identify different types of classification. This can be learned from Japan, which is known to have a very strong concept of waste separation, and they are in the upper reaches of the development of environmental protection systems around the world. They generally give a strong institutional basis for waste separation through legislation and pay special attention

to the fine-grained requirements for waste separation. For example, different styles of labels are used to put on the sorting and recycling offices or garbage bins, thus effectively guiding the public to sort their waste properly.

The management of medical waste classification in China should also adhere to following the concept of sustainable development, focusing on the resource-based disposal of medical waste. Based on the characteristics of medical waste in China and the existing technical means of waste disposal, medical waste is divided into four categories: general waste, hazardous waste, recyclable waste, and medical waste liquid waste, of which hazardous waste includes other toxic and infectious waste such as infectious waste. Recyclable waste is distinguished at the beginning of medical waste generation, which saves costs for medical institutions to deal with medical waste on the one hand, and improves economic benefits for medical waste disposal units on the other. It is conducive to the establishment of a resource recycling society and in line with the development concept of economic and sustainable development. Medical waste liquid type waste is relatively small in output and is not separately classified in China's medical waste classification catalog, but the danger of medical waste liquid is rising and the threat to the social environment is gradually increasing. Medical waste fluids are morphologically distinct from other types of waste, so it is imperative to include them in the medical waste classification catalog for standardized management and to pay attention to the management and disposal of medical waste fluids.

5.2 Improve the supervision and management system

First, strengthen the internal supervision of medical waste treatment in medical institutions. Medical waste is directly generated by medical institutions and is the most important source of medical waste, so to deal with medical waste, we must first manage it at the source and reduce the loss of medical waste and at the same time reduce the pressure of secondary treatment of medical waste by strengthening the medical waste treatment capacity and supervision system of medical institutions themselves. The first step to strengthening the internal supervision of medical waste disposal in medical institutions is to strengthen the management and training of waste producers. Regular training on medical waste disposal, proper waste classification, guiding doctors and nurses to handle medical waste properly and cultivating awareness of waste classification and environmental protection among medical waste producers. Secondly,

strict waste disposal regulations and violation handling methods should be established, such as warnings for the first violation and severe penalties for the second and more. At the same time, the responsibility system of waste disposal can be implemented, i.e. medical waste classification and disposal are assigned to a specific person and the corresponding methods are implemented so that it is possible to promote the good development of medical waste disposal.

Second, strengthen the supervision and management of medical waste disposal institutions. Medical waste disposal institutions are professional institutions that specialize in collecting and treating medical waste, and the final effective treatment of medical waste requires medical institutions to be able to follow formal programs, and have perfect processes and good technology, which are the most basic requirements as medical waste disposal institutions. In addition to this, there is a need to strengthen the internal and external supervision of medical institutions. The basic conditions and requirements that medical waste disposal institutions should have are clearly stated in the Regulations on Medical Waste Management, and a strict review is set. In addition to this, there is also a need for occasional inspection and supervision of medical institutions, including the relevant internal management system, equipment operation, and the water flow of waste. Medical institutions should regularly check the performance of equipment inside, and timely replacement of problematic equipment, while actively introducing advanced medical waste treatment technology to further achieve harmless and environmental protection.

Third, strengthen the joint management of health administrative departments and ecological and environmental authorities. Article 54 of China's Medical Waste Management Regulations provides for supervision and management of centralized medical waste disposal by the competent departments of ecology and environment and the competent departments of health administration. The regulation divides different medical waste management responsibilities for the relevant administrative departments, seemingly requiring the two departments to manage and supervise medical waste disposal, but it does not explain the specific management and supervision methods of the two departments, and the scope of management is vague. Because medical waste is highly infectious, highly dangerous, and other characteristics, if the two departments do not communicate on time in the supervision process, often prone to medical waste leakage spread and other major safety incidents. Therefore, the relevant laws and regulations should be formulated to divide the general tasks for each department and

strengthen the joint management and supervision of the two departments in all aspects of medical waste treatment, so that the problems of ambiguous management scope and untimely communication in the process of medical waste treatment today can be effectively solved.

5.3 Suggestions for improving China's medical waste recycling system

Based on the different characteristics, composition, and uses of medical waste, the act of treating it and reusing it is called the recycling system of medical waste. Promoting the recycling of medical waste not only protects the environment but also promotes the steady development of related industries, which is the embodiment of the concept of green development and circular economy. China does not have special provisions for medical waste recycling, and the lack of institutional protection of medical waste recycling in practice is often full of loopholes, which seriously hinders the process of construction of China's medical waste legal mechanism. Therefore, legislation to provide for medical waste recycling is essential. Compared with general waste, medical waste is more likely to cause a threat to the environment and social security, but also because of the nature of the special nature of the economic value of its creation is higher. According to the survey, ninety percent of medical waste is harmless, and the remaining is hazardous waste that needs to be professionally disposed of, so there is a wide market for medical waste recycling to achieve its economic benefits based on protecting the environment and saving resources.

To achieve the recycling of medical waste, increase the economic benefits of medical recycling and treatment institutions, and promote ecological and environmental protection, the most direct and effective way is to start from the economy and develop economic policies that are conducive to the development of enterprises and help them to overcome difficulties to bring them economic benefits. In the development of economic policies, the first step is to study the existing laws and regulations, study the specific situation and difficulties currently faced by medical waste recycling enterprises, and analyze specific problems. The development of economic incentive policies for medical recycling is conducive to the promotion of resource recovery and reuse, the development of a circular economy, and the development of a green economy, to achieve the harmonious coexistence of man and nature and the realization of ecological civilization. In the development of medical waste recycling and

treatment of economic incentives can be considered from the following aspects: First, in the initial establishment of medical waste treatment enterprises, you can provide preferential policy support for enterprises, such as tax relief, interest-free loans, relaxation of restrictions, appropriate green light. Thus, to help enterprises through the difficult situation in the early stage, to reduce losses or ensure basic profitability, so that enterprises can run smoothly. Since 1970, Japanese companies have been taking out loans for the construction of pollution prevention and control facilities at an interest rate usually lower than 1% to 2% of the market rate. Second, the medical waste recycling industry has a long return on investment cycle, and enterprises may have problems with capital turnover in the early stage of operation, the state can reduce taxes and tax exemptions for the relevant enterprises to ensure their steady development in the early stage of capital constraints. For example, reducing the tax burden to stimulate the development of enterprises is also a frequent preferential policy in Japan. By establishing an economic incentive system to deploy market resources to the medical waste recycling industry, changing the previous legal provisions that emphasize punishment over encouragement, and highlighting the management concept of promoting industry governance with economic incentives, China's medical waste recycling can be developed efficiently while fully realizing the win-win situation of protecting the environment, saving resources and safeguarding society.

6 Conclusion

After years of efforts and continuous exploration, China has made great achievements in various aspects of the legal system of medical waste pollution prevention and control, but the gradual development of the times requires China's legal system of medical waste construction is also progress, today's social and environmental problems caused by medical waste is still not to be underestimated, improve the construction of legal mechanisms is a strong guarantee of medical waste pollution prevention and control. Adhering to the values of sustainable and green development, the construction of the legal system for the prevention and control of medical waste pollution for the world and with Chinese characteristics, to achieve a qualitative jump to the institutionalization and systematization of medical waste management link. This topic firstly elaborates on the definition, classification, and characteristics of medical waste then introduce the legislative overview and basic principles of medical waste

pollution prevention and control in China and summarize the defects of the current legal system of medical waste pollution prevention and control in China in combination with the actual problems generated by medical waste. Finally, based on the actual situation in China and learning from foreign excellent medical waste management experience, from the classification and disposal of medical waste, supervision, and management, recycling three aspects of recommendations and measures. My limited ability, only from the classification of medical waste, supervision, and recycling shallow research, my conclusions can only provide a small color for the construction of China's medical waste legal mechanism, there is a certain one-sided, still need to continue to study and progress on this basis.

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